Induced pluripotent stem cell technology: a decade of progress.

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Public Summary:
Since the advent of induced pluripotent stem cell (iPSC) technology a decade ago, enormous progress has been made in stem cell biology and regenerative medicine. Human iPSCs have been widely used for disease modelling, drug discovery and cell therapy development. Novel pathological mechanisms have been elucidated, new drugs originating from iPSC screens are in the pipeline and the first clinical trial using human iPSC-derived products has been initiated. In particular, the combination of human iPSC technology with recent developments in gene editing and 3D organoids makes iPSC-based platforms even more powerful in each area of their application, including precision medicine. In this Review, we discuss the progress in applications of iPSC technology that are particularly relevant to drug discovery and regenerative medicine, and consider the remaining challenges and the emerging opportunities in the field.

Scientific Abstract:
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